

**Review of the Internal Revenue
Service's Year 2000 Contingency
Planning Efforts**

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MEMORANDUM FOR COMMISSIONER ROSSOTTI

FROM: Lawrence W. Rogers /s/Lawrence W. Rogers
Acting Treasury Inspector General for Tax Administration

SUBJECT: Final Audit Report - Review of the Internal Revenue Service's
Year 2000 Contingency Planning Efforts

This report presents the results of our review of the Internal Revenue Service's (IRS) Year 2000 Contingency Planning Efforts. We briefed management on these issues on July 30, 1998 and provided them a draft of this report for comment on September 22, 1998. In their February 8, 1999 response to the draft report, IRS management did not concur with all of the findings and recommendations. Management's comments are included in the body of this report where appropriate, and a full text of their comments is included as Appendix V.

In summary, we informed IRS management in July 1998, that the database and process used for tracking Year 2000 conversion progress contained errors and inconsistencies. A more recent analysis we performed on the December 1998 database found the problem had worsened. These conditions hinder management's ability to monitor conversion progress and prepare contingency plans for systems at risk of not meeting the conversion deadlines. Even when the data did identify systems at risk, management did not follow the process to ensure contingency plans would be timely developed.

In addition, the IRS had not properly coordinated the Year 2000 contingency planning efforts with its overall contingency planning efforts for disasters and other types of failures. Because of the time which has elapsed since we first briefed management on this issue, some of the benefits that could have been realized from coordinating these activities have been lost. However, IRS can still avoid many of these problems by implementing the corrective actions recommended in this report.

Copies of this report are being sent to the Internal Revenue Service managers who are affected by the report recommendations (a distribution list is included as Appendix III). Please call me at (202) 622-6500 if you have any questions, or your staff may contact Maurice S. Moody, Acting Assistant Inspector General for Audit at (202) 622-8500.

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Year 2000 Contingency Planning Efforts**

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Executive Summary

The task of converting all of the Internal Revenue Service's (IRS') computer systems to ensure they work properly in the Year 2000 is immense due to the size and complexity of the IRS' processing environment. Contingency planning needs to be an important part of the IRS' overall Year 2000 conversion effort because of the risk that some systems may not be Year 2000 compliant when the century date change occurs.

The primary objective of this review was to assess the IRS' contingency planning efforts to address conversion problems and unexpected failures due to the century date change. This review did not include non-information technology and telecommunication contingency planning. These areas were excluded because the IRS was in the process of developing a contingency planning management method and an inventory tracking method for them at the time of our review.

It is important to note that the issues in this report were discussed with management on July 30, 1998, and a draft of this report was issued to management for comment on September 22, 1998. In their February 8, 1999 response to the draft report, IRS management did not concur with all of the findings and recommendations. Management's comments are included in the body of this report where appropriate, and a full text of their comments is included as Appendix V.

Results

IRS has a process to identify risk areas for contingency planning purposes. Meetings are held weekly to discuss the conversion process and to assess the need for contingency plans. However, improvements are needed to ensure the process provides adequate coverage and is consistently followed.

In addition, because systems that have completed the conversion process may still fail, the IRS needs to complete a comprehensive Year 2000 contingency plan before the century date change. Consolidating Year 2000 and non-Year 2000 efforts will make better use of resources and help expedite both processes.

To help ensure that adequate contingency plans are in place by the Year 2000, management should address the following issues.

The Computer Inventory and Monitoring System Used for Component Conversions Has Missing, Inaccurate, and Inconsistent Data

Although there have been efforts to clean up the conversion data files, records still contain missing, inaccurate, and inconsistent data which may affect the contingency management process. Due to the size of the files, constant updates, and accesses by multiple users, validity checks are needed to minimize errors.

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Late and Incomplete Component Conversions Are Not Effectively Followed Up On

Systems should not be considered satisfactory if components are past due dates or incomplete. A system with overdue or incomplete components, regardless of its overall conversion status, has the risk of not being Year 2000 compliant and may require contingency planning.

The Year 2000 Certification Process Is Not Monitored to Indicate When Contingency Planning Becomes Necessary

The certification process is a post-production validation to ensure that systems are Year 2000 compliant. Since the certification process can identify conversion problems, there is a need for procedures to identify “at risk” systems during certification for possible contingency action.

The Need for Contingency Plans Is Not Always Identified, Evaluated, and Monitored

IRS established formal Contingency Request Memorandum procedures to ensure that potential problems in critical systems would be adequately identified and addressed. However, these procedures are not always followed, unnecessarily delaying the development of contingency procedures.

Year 2000 and Non-Year 2000 Contingency Planning Efforts Are Not Properly Coordinated

Many of the same steps in the contingency planning process are needed for both Year 2000 and non-Year 2000 failures. However, the Service is establishing a new process for Year 2000. Starting a new process to develop contingency plans for Year 2000 failures increases the risk that adequate contingency plans will not be in place by the Year 2000. Coordinating Year 2000 and non-Year 2000 contingency planning efforts should help expedite the process and build on expertise gained from business continuity planning efforts to date.

Summary of Recommendations

- Review and correct Year 2000 inventory files on a recurring basis to ensure information used to identify the need for contingency plans is accurate and complete.
- Establish validity checks for the Year 2000 inventory files.
- Develop procedures to identify, monitor, and contact owners of components or systems that have not completed the 12 milestones for Year 2000 conversion within a reasonable period after the due date.
- Develop procedures to identify “at risk” systems during the certification process.

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- Adhere to the formal Contingency Request Memorandum process to ensure timely development of contingency procedures.
- Assign responsibility for the IRS' overall contingency management strategy, including Year 2000, and the coordination of resources to one area.
- Consider monitoring the status of contingency planning as part of the IRS' Year 2000 dashboard report.

Management's Response: Management did not agree with all of our findings or recommendations. Management's response and our comments related to the response are presented at the end of each report section. Management's complete response is included as Appendix V.

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Objectives and Scope

We initiated this review as part of an overall strategy to assess the IRS' efforts to ensure all systems function properly at the turn of the century. Audit work was performed during the period March through July 1998.

To complete this review, we obtained information from the Information Systems Division (including the Century Date Change Project Office), the Northeast Regional Office, Andover Service Center, Fresno Service Center, Martinsburg Computing Center, and Tennessee Computing Center. This review was conducted in accordance with generally accepted government auditing standards.

We assessed the IRS' planning efforts to address Year 2000 conversion problems and unexpected failures due to the century date change.

Our overall objective was to assess the IRS' Year 2000 contingency planning efforts by determining if the IRS has adequately addressed the risk that all systems may not be converted by the turn of the century or encounter unexpected failures. This review did not include non-information technology and telecommunication contingency planning because the IRS was in the process of developing a contingency planning management method and an inventory tracking method for these areas at the time of our field work.

To achieve our overall objective, we:

- Determined if the *Century Date Change Contingency Management Plan* covers all mission critical systems and clearly defines stakeholders' roles and responsibilities for each system.
- Determined if the monitoring process effectively identifies systems at risk of not being Year 2000 compliant.
- Determined if "at risk" systems were properly issued Contingency Request Memoranda and whether the responses were adequate.
- Determined if local contingency plans (business resumption plans and disaster recovery plans) have

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considerations for system failures that can be used in the event of a Year 2000 system failure.

Appendix I contains the detailed objectives, scope and methodology of our review. A listing of major contributors to this report is shown in Appendix II.

Background

The Year 2000 computing crisis is a direct result of software and memory limitations in early computers. To accommodate these limitations, programmers had to create computer code as efficiently as possible. This led to the use of a two-digit representation of the year (e.g., 1998 is represented as 98). Since date fields are used in many critical computer functions, use of a two-digit date will cause many computers and computer applications to malfunction after the century date change.

There are over 60 million lines of computer programming code for the IRS' 135 major computer systems.

The Year 2000 problem affects most of the IRS' operations because of its reliance on computer and telecommunication systems. The IRS has approximately 130,000 personal computers; 1,000 minicomputers; 80 mainframe computers; and 100,000 communication devices. This hardware supports 135 major systems with approximately 94,000 application components containing over 60 million lines of programming code. The IRS also shares computer information with other entities such as state, local, and foreign governments; other Federal agencies; banks; and private corporations. Moreover, items such as security systems, office equipment, and transportation may have microchips, software, and time/date information embedded that use the 2-digit format.

The CDC Project Office was established to ensure all current and future systems are Year 2000 compliant.

To ensure the Year 2000 challenge is met, the IRS established the Century Date Change (CDC) Project Office in 1996. The CDC Project Office's primary goal is to ensure that all current and future systems are Year 2000 compliant prior to January 2000 by scheduling the analysis, upgrading, conversion, testing, certification, and implementation of all systems. The CDC Project Office also has oversight responsibility

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The CDC Project Office created 14 conversion milestones to help track the progress of Year 2000 conversion. The milestones are monitored to identify delays, which may necessitate contingency planning.

that includes establishing policies and procedures as well as conversion standards, methodology, and schedules.

The CDC Project Office adopted the National Institute of Standards and Technology (NIST) standard of expanding all 2-digit year fields to 4-digit year fields. To ensure all existing and new applications are compliant with this standard, the CDC Project Office created a 14-step (milestone) conversion process (See Appendix IV).

Because of the complexity of the Year 2000 conversion process, the IRS developed a *Century Date Change Contingency Management Plan* (CMP) so that systems at risk of not meeting the Year 2000 deadline are identified for contingency planning purposes. The IRS compares the current and planned progress through the first 12 milestones in the Year 2000 conversion process to identify "at risk" systems. A "green" status is used for satisfactory progress. If the variance from the planned progress is more than 5 percent, then the system moves to a "yellow" status. At 15 percent or more variance, the system becomes "red" status and subject to contingency requirements.

GAO identified contingency planning as a risk area for the IRS' Year 2000 effort.

Even though the IRS has the CMP in place, the General Accounting Office (GAO) identified contingency planning as a risk area for the IRS' Year 2000 effort because the CMP requires the development of contingency plans only for those areas at risk of not being converted by the year 2000. The CMP does not address the possibility that a system converted on schedule may still experience a failure.

The IRS' internal procedures require contingency plans for all critical systems.

The IRS recognizes the importance of contingency planning in its own internal procedures. The Internal Revenue Manual requires contingency plans be developed, implemented, tested, and maintained for all critical information systems located at the National Office, regional offices, district offices, service centers, and computing centers.

The IRS' overall contingency planning effort is critical because the Year 2000 conversion is not the only

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significant challenge the IRS is currently confronting. The IRS is simultaneously addressing the 1999 tax return processing changes, mainframe consolidation, and the new Integrated Submission and Remittance Processing system.

Results

There are two important elements to the IRS' Year 2000 contingency planning efforts:

- 1) A process for identifying systems at risk of not meeting Year 2000 conversion deadlines so that specific contingency plans can be developed.
- 2) The development of comprehensive contingency plans in case converted systems still experience failures.

Even though the IRS has a process to identify risk areas for contingency planning purposes, improvements are needed to ensure the process is complete and consistently followed.

At the time of our review, the IRS was just beginning the process of developing a comprehensive Year 2000 contingency plan in case converted systems still experience failures. Because these plans need to be in place by the Year 2000, the IRS needs to make better use of expertise gained from non-Year 2000 contingency planning efforts, rather than starting the process all over again.

To strengthen its overall Year 2000 readiness effort and minimize the potential for loss of revenue and increased taxpayer burden, the IRS should take corrective actions on the following issues. The first four issues are presented in the order they affect the identification of conversion problems and development of contingency procedures. The last issue addresses comprehensive contingency planning efforts.

- The computer inventory and monitoring system used for component conversions has missing, inaccurate, and inconsistent data.

During our review of the IRS' Year 2000 contingency planning efforts, we identified issues that need to be corrected to ensure that the IRS has adequate contingency plans in place by the Year 2000.

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- Late and incomplete component conversions are not effectively followed up on.
- The Year 2000 certification process is not monitored to indicate when contingency planning becomes necessary.
- The need for contingency plans is not always identified, evaluated, and monitored.
- Year 2000 and non-Year 2000 contingency planning efforts are not properly coordinated.

The Computer Inventory and Monitoring System Used for Component Conversions Has Missing, Inaccurate, and Inconsistent Data

The CDC Project Office, business owners, and technical owners rely on the Application Program Registry (APR) data files to accurately reflect inventory and conversion progress. This monitoring tool is a key feature to help assure the IRS that its systems are Year 2000 compliant and to activate contingency planning for systems at risk of not meeting the Year 2000 conversion deadline.

Inventory and milestone accomplishments for the IRS' application and system software are contained on the APR. There are two data files within the APR for inventory and for conversion milestones. We reviewed the May 26, 1998 APR that included approximately 94,000 application components and identified the following missing, inaccurate, and incomplete data:

- We found 64 component names in the conversion status data file that do not correspond to records in the inventory data file. These components do not have identified systems, responsibilities, or contacts.
- We found 42 component names in the inventory data file that do not correspond to records in the conversion status data file. These components do not have a record of planned or actual milestone accomplishments.

Management's ability to monitor conversion progress is hampered by missing, inaccurate, and incomplete computer data.

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- We found 718 components in the conversion status data file that do not indicate whether IRS has committed to retire or convert these components. The weekly progress reports for this period indicated only 124 uncommitted components.
- We found 13,668 components in the conversion status data file that have dispositions that contradict the inventory data file's lifecycle. It is unknown if these components should be converted or retired.
- We found 637 components in the conversion status and inventory data files that have dispositions and lifecycles that indicate they should be retired. However, the conversion status data file indicates the components have completed the conversion milestones including implementation (milestone 12). It is unknown if these systems should be retired or converted and placed into production.
- We found 551 components in the conversion status data file with milestones completed years before the CDC Project Office was established in 1996. Some notable examples include the dates: 1934 for an Impact Analysis Date (milestone 3); 1985 for a Unit Test Date (milestone 6); 0998 for a SAT Report Date (milestone 11); and 1977 for a Production Transmittal Date (milestone 12).
- We found 4,362 components in the conversion status data file that indicate testing had been performed before code conversion had been completed.
- We found 24,100 components in the conversion status data file that are shown to have been put into production before testing had been completed.

Computer validity checks are not sufficient to minimize errors.

Although there have been efforts to clean up the APR data files, records continue to contain missing, inaccurate, and inconsistent data. If the APR is not accurate, management cannot rely on the data to determine if contingency planning is necessary.

Due to the size of the files, constant updates, and accesses by multiple users, it is difficult to minimize errors without having sufficient validity checks. The

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current computer validity checks do not prevent the situations we identified.

Recommendation 1

IRS management should review and correct the data files used to monitor the Year 2000 progress for the situations we reported. This should be a recurring process as the Year 2000 conversion continues and should include:

- Verifying the existence of components and the consistency of recorded information between data files.
- Verifying the accuracy of mandatory fields including disposition, lifecycle, phase and milestones.

Management's Response: Management states that the cause of inaccurate data was a systemic problem that was corrected in August 1998. Management also states that a sizable portion of the existing inaccurate data has been resolved.

Office of Audit's Comments: *We agree there is a systemic problem that is addressed by our next recommendation on validity checks. However, we do not agree that a sizable amount of the inaccurate data has been resolved. Our review of the APR in December 1998 showed an increase of inaccurate data since May 1998. We also found the previously reported inaccurate data were not corrected.*

For example, as of December 7, 1998, the INOMS conversion status data file showed 1,580 components without a phase or disposition, a substantial increase over the 718 we previously reported. We found that 418 of these were the same components without a phase or disposition we found on the May 26, 1998 INOMS conversion status data file.

Components that are shown to have completed milestones in reverse order increased from 4,362 to 4,625 with testing started before code conversion (3,917 of these have not been corrected since we first reported this issue). We also found an increased number of

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components, from 24,100 to 24,380, put into production before completion of testing (22,506 of these have not been corrected since we first reported this issue).

Recommendation 2

To ensure future computer data used to monitor the Year 2000 progress is accurate and complete, management needs to develop validity checks in the APR data files. These validity checks should include:

- Comparing fields within data files for valid, compatible values.
- Matching similar and mandatory fields between data files for valid, compatible values.
- Comparing fields within data files for proper sequence of events.

Management's Response: Management's assessment of cause states this issue was corrected in August 1998. Their corrective action is to continue to monitor these issues.

Office of Audit's Comments: *As noted previously, we do not agree the inaccurate data have been resolved. Our review of the APR in December 1998 showed an increase of inaccurate data since May 1998 which indicates the systemic problem was not fully corrected. For example, the December 7, 1998, INOMS conversion status data file showed the components with milestones completed before the CDC Project Office was established had increased from 511 to 636 (345 of these were the same components we found with this problem on the May 26, 1998 INOMS). This problem could easily be avoided with validity checks.*

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Late and Incomplete Component Conversions Are Not Effectively Followed Up On

Only systems in red status are considered "at risk" and subject to contingency requirements.

The IRS compares the current and planned progress through the first 12 Year 2000 conversion milestones to identify "at risk" systems. These milestones are to be completed in one of five phases with specific deadlines. A "green" status is used for satisfactory progress. If the variance from the planned progress is more than 5 percent, then the system moves to a "yellow" status. At 15 percent or more variance, the system becomes "red" status and subject to contingency requirements.

We reviewed the May 26, 1998 APR for components scheduled for Phase III Year 2000 conversion and identified 511 late and 195 incomplete components. Late components are those that did not complete implementation (milestone 12) until after the phase due date. Incomplete components are those that continue to have one or more missing completion dates for the first 12 milestones.

Organizations are in satisfactory status despite having late and incomplete components.

For the 511 late and 195 incomplete components, we identified the 11 corresponding maintenance organizations and the conversion status as of the Phase III due date. We determined that 181 late and 170 incomplete components that belong to 9 maintenance organizations had "green" conversion status at the time of the phase due date.

Organizations should not be considered satisfactory or "green" if components are past due dates or incomplete. A system with overdue or incomplete components, regardless of its overall conversion status, has the risk of not being Year 2000 compliant and may require contingency planning.

Information Reports are not effectively used to correct and update component progress.

There are weekly reports called the "Century Date Change Oversight Report," the "Invalid Listing," and the "Phase III Missing Milestone Report." These reports show conversion status and missing milestone dates. We did not find procedures requiring the use of these reports to update and clarify component progress.

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In addition, there was no requirement to respond to the CDC Project Office as to the actions taken regarding these reports.

Recommendation 3

Management should develop procedures to identify, monitor, and contact owners of components or systems that have not completed the 12 milestones within a reasonable period after the phase due date. The information reports can identify and communicate between the CDC Project Office and the system owners any overdue and incomplete components. After contacting system owners with incomplete components that still appear to be “at risk,” management should have procedures to begin contingency planning.

Management's Response: Management does not agree with this issue and, accordingly, proposes no corrective action.

Office of Audit's Comments: Management states, "An organization will ultimately be reported in Red status if all of its components do not complete every milestone through implementation." However, there is no mention of how long this will take. Using the December 7, 1998 APR INOMS, we identified 175 Phase III components marked to be converted that did not complete all the milestones to implementation. These components are 309 days overdue. However, the “Year 2000 Weekly Status Report” for this time frame shows no Phase III organizations in “red” status. In our opinion, management needs to be more specific in identifying when these organizations will be reported in “red” status.

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The Year 2000 Certification Process Is Not Monitored to Indicate When Contingency Planning Becomes Necessary

System-Level Certification is accomplished by setting the system clock to the Year 2000.

The Year 2000 conversion process has 14 milestones. The last two milestones are for the Year 2000 certification process and include "Component-Level Certification" and "System-Level Certification." The Component-Level Certification takes place when Product Assurance reviews all documentation and certifies that the converted and tested program is Year 2000 compliant. System-Level Certification is accomplished by testing with the system clock set to the year 2000. These milestones comprise the last 15 percent of the conversion process.

Despite the importance of these last two milestones in identifying conversion problems, we found that "at risk" systems failing the Year 2000 certification process may not receive proper consideration for contingency planning.

There are no contingency procedures or methods to identify "at risk" systems during the last milestones that test whether systems have been properly converted.

Procedures are not adequate in the CDC Contingency Management Plan or the CDC Project Management Plan for systems that fail or become delayed during the Year 2000 certification process. The September 1997 release and the June 1998 consolidated draft CDC Contingency Management Plans do not specifically monitor the certification process to identify "at risk" systems. The CDC Project Management Plan does not indicate the steps to remedy a system that failed or encountered a delay during certification.

The current method of identifying "at risk" systems using a 15 percent variance from planned progress will not work for the certification process. A system would be identified as "at risk" only when the deadline had been reached and no testing had been completed or the system had failed during the tests.

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Recommendation 4

Develop procedures to identify “at risk” systems during the Year 2000 certification process before deadlines have been reached. This includes steps to remedy a system that failed or encountered a delay during either Component-Level Certification or System-Level Certification.

Management's Response: Management indicates disagreement with this audit recommendation and states that a contractor's 100 percent programming code review and the end-to-end testing process already identify “at risk” systems during the certification process.

Office of Audit's Comments: Management began using the processes they describe to initiate contingency planning after we briefed them in July 1998. These processes should be adequate if implemented effectively.

The Need for Contingency Plans Is Not Always Identified, Evaluated, and Monitored

Specific procedures have been established for issuing and responding to Contingency Request Memoranda.

According to IRS procedures, the CDC Project Office should issue Contingency Request Memoranda to business and technical owners when systems that should be 60 percent complete are less than 45 percent complete. When this occurs, business and technical owners are supposed to provide a response to the CDC Project Office within 30 days. The response should contain a contingency plan alternative, resources required for implementation, impact on ongoing conversion efforts, and contingency plan milestones. If a contingency plan is required, the technical owner is requested to submit a progress report to the CDC Project Office every two weeks.

Even when “at risk” systems are identified, they are not effectively addressed.

As discussed previously, the CDC Project Office may not be identifying all “at risk” systems due to inaccurate computer data, lack of monitoring after due dates, and lack of monitoring during certification. In addition, the

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CDC Project Office does not effectively address “at risk” systems when the current process does identify these situations.

During the period October 1, 1997 to June 20, 1998, we identified 10 situations that required Contingency Request Memoranda. After reviewing these situations, we determined all 10 contained some form of issuance, response, evaluation, or monitoring deficiency.

The CDC Project Office did not:

Our review of the 10 situations covering issuance of Contingency Request Memoranda found that 7 were not issued.

- Identify one “at risk” system and therefore did not issue a Contingency Request Memorandum.
- Issue two Contingency Request Memoranda when “at risk” systems were initially identified. After being identified "at risk" a second time, these systems were finally issued Contingency Request Memoranda.
- Issue four Contingency Request Memoranda to “at risk” systems. The CDC Project Office and system owners took informal actions when formal notification, response, and monitoring should have taken place.
- Receive one Contingency Request Memorandum response. As of July 22, 1998, the response was 67 days overdue.
- Timely evaluate one Contingency Request Memorandum response to assess the risk and to determine contingency milestones that would require monitoring. The system owners were not contacted regarding deficiencies in the response for 68 days.
- Properly monitor one Contingency Request Memorandum response for progress reports that update the contingency plan risk status.

We found one Contingency Request Memorandum response 67 days overdue.

The issuance and response procedures established by the CDC Project Office are not being followed.

The CDC Project Office established formal procedures for issuing and responding to Contingency Request Memoranda. These procedures are not consistently followed. Not following controls designed to place “at risk” systems on notice can reduce the system owner’s

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accountability and adversely affect monitoring by the CDC Project Office.

The CDC Project Office can not totally rely on its future automation to accomplish its contingency oversight responsibilities. Although future automation of Contingency Request Memoranda should help with the identification of "at risk" systems, it will not help with the evaluation and monitoring of the responses. The CDC Project Office should ensure the formal process is followed using manual or automated means, and that they adequately follow up by evaluating and monitoring documented responses.

Recommendation 5

Management should adhere to the formal Contingency Request Memorandum process to ensure timely development of contingency procedures. This process includes accurately documenting the identification, agreements, and monitoring milestone accomplishments by the "at risk" system owners and the CDC Project Office.

Management's Response: Management implemented a process as of October 1, 1998 that includes evaluation of both the need to issue and the suspension of action for a Contingency Request Memorandum. Management also states that other steps have been taken to document the progress and to follow up on delinquent action.

Office of Audit's Comments: *Management's new procedure to allow for delays in issuing Contingency Request Memoranda to systems already determined to be "at risk" increases the risk that contingency plans will not be in place when needed. In addition, management's response does not detail the steps that will be taken to document the progress on Contingency Request Memoranda or to follow up with organizations that are delinquent on Contingency Request Memorandum action requirements.*

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Year 2000 and Non-Year 2000 Contingency Planning Efforts Are Not Properly Coordinated

A comprehensive contingency plan is needed because systems that have completed the conversion process may still experience failures in the Year 2000.

The IRS failed to address Year 2000 in its disaster recovery and comprehensive business resumption planning efforts.

As discussed above, the IRS has a process in place to initiate contingency planning for systems at risk of not completing the Year 2000 conversion process on time. However, there is also a need for a more comprehensive plan in case systems that have completed the conversion process still experience failures in the Year 2000.

The IRS has recently devoted considerable effort to the development of non-Year 2000 contingency plans for the computing centers, service centers, regions and districts. These plans are known as Disaster Recovery and Comprehensive Business Resumption plans. Although the possibility of Year 2000 failures is widely known, none of the functions responsible for these plans included methods for dealing with Year 2000 failures. The recovery strategy of the non-Year 2000 plans is to establish operations at an alternate site using data back-up files. In most cases, this would provide no benefit in a Year 2000 related failure.

In a recent review, GAO outlined steps that the IRS needs to take to develop a comprehensive Year 2000 contingency plan, including the following:

1. "Identify IRS core business processes and prioritize those processes that must continue in the event of Year 2000 failures."
2. "Map IRS mission critical systems to core business processes."
3. "Determine the impact of information systems failures on each core process."
4. "Develop and test contingency plans for core business processes if existing plans are not appropriate."

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The CDC Project office has begun efforts to develop a Year 2000 contingency plan with the assistance of a vendor.

There are already a number of areas involved with managing contingency planning efforts. Ideally, one area should be responsible for coordinating these efforts.

The IRS should develop target milestones and monitor the contingency planning process to ensure completion by the Year 2000.

The IRS is currently taking additional steps to establish comprehensive contingency plans for core business processes in case of Year 2000 failures. The initial meeting to start this effort and begin defining core business processes took place on July 29, 1998. The CDC Project Office has responsibility for this process with the assistance of a Year 2000 vendor.

However, starting the entire contingency planning process all over again for potential Year 2000 failures will lead to inefficient use of the IRS' resources. It draws on CDC Project Office resources needed for the Year 2000 conversion and testing efforts as well as vendor resources rather than resources already assigned to contingency planning. Areas responsible for non-Year 2000 contingency planning include the Office of Security, Systems, and Evaluation, the Executive Officer for Service Center Operations, the Northeast Regional Commissioner's Office, and the Computing Center Directors. Disaster Recovery analysts also support this effort.

Many of the steps needed must be taken regardless of whether the contingency planning is for Year 2000 or non-Year 2000 failures. Inadequate coordination will cause delays in developing comprehensive Year 2000 contingency plans and increase the risk that adequate plans will not be in place by the Year 2000.

Additionally, since the entire process will only be of benefit if completed before the Year 2000, the IRS should develop target milestones and monitor the contingency planning process to ensure milestones are completed timely.

Recommendation 6

Management should consolidate oversight responsibility for the IRS' overall contingency management strategy and the coordination of resources into one area. This responsibility would include both Year 2000 and non-Year 2000 contingency planning, as well as coordinating with internal resources and vendors. Coordination for this effort should be assigned at a high enough level to oversee all contingency planning resources.

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Management's Response: Management did not agree with our recommendation because the time-critical nature of being ready for the Year 2000 does not allow enough time to establish a centralized IRS office to manage Servicewide contingency planning. However, management states that it did develop a core business process that has been mapped to mission critical systems with guidance to develop failure scenario matrices. In addition, a Century Date Change Business Continuity and Contingency Plan was published in November 1998 to provide business owners' assessments of areas that impact the IRS mission if supporting systems failed for Year 2000 reasons. Management states that the need for contingency plans will be established based on these assessments and other Year 2000 risk factors.

Office of Audit's Comments: Because of the time that has elapsed since we first briefed management on this issue, some of the benefits which could have been realized from coordinating these activities have been lost. However, the actions management has taken, if implemented effectively, should enhance the likelihood that contingency plans will be available when needed.

Recommendation 7

Management should consider monitoring the status of contingency planning as part of the IRS' Year 2000 dashboard report. The dashboard report was established to help high level management monitor the progress of critical Year 2000 projects and areas. This monitoring should follow the key steps in the development and testing of these contingency plans to ensure they are appropriate for Year 2000 failures.

Management's Response: The CDC Project Office included contingency planning as an element in its weekly status reports and meetings starting in November 1998. Contingency planning will also be included in the Executive Steering Committee dashboard starting with the January meeting.

Review of the Internal Revenue Service's Year 2000 Contingency Planning Efforts

Conclusion

The Year 2000 problem is complicated by the size, complexity, and interdependencies of the IRS' computer systems. In addition, the consequences of system failures and the absolute deadline make it a critical task for an organization as large and as reliant on computers as the IRS.

Because of the enormity of the task, systems may not all be converted in time due to resource constraints or other problems. Although the IRS has a process to identify risk areas for contingency planning purposes, improvements are needed to ensure the process provides adequate coverage and is consistently followed.

In addition, because systems that have completed the conversion process may still fail, the IRS needs to complete a comprehensive Year 2000 contingency plan before the century date change. Consolidating Year 2000 and non-Year 2000 efforts will make better use of resources and help expedite both processes.

Making the effort now to strengthen the contingency planning process will help the IRS ensure the continuity of its operations and fulfill its mission of maintaining quality service to taxpayers.

Detailed Objectives, Scope and Methodology

This review assessed the IRS' Year 2000 contingency planning efforts by determining if the IRS has adequately addressed the probability that all systems may not be converted by the turn of the century or systems may encounter unexpected failures. Specifically, we:

- A. Determined if the *CDC Contingency Management Plan* covers all types of mission critical systems and clearly defines stakeholders' roles and responsibilities for each type of system. As needed, we conducted discussions with the CDC Project Office and other stakeholders to clarify obtained information.
 - 1. Obtained IRS' requirements, other government requirements, and acceptable managerial practices for contingency plans.
 - 2. Reviewed the *CDC Contingency Management Plan* to identify its intended purpose and scope. In addition, we reviewed the plan to identify stakeholders' roles and responsibilities.
 - 3. Identified any type of mission critical systems discussed in the *CDC Project Management Plan* that are not covered in the *CDC Contingency Management Plan*. For mission critical systems not covered, we obtained and reviewed any final or draft contingency management plans that would cover these systems and determined if these plans can be incorporated into one IRS-wide contingency management plan.
 - 4. Identified any stakeholders' roles and responsibilities discussed in the *CDC Project Management Plan* that are not covered in the *CDC Contingency Management Plan*. Also, we ensured all stakeholders have been identified and their roles and responsibilities are appropriate for the type of system structure.
- B. Determined the effectiveness of the CDC Project Office's monitoring process to identify "at risk" systems of not being Year 2000 compliant. As needed, we conducted discussions with the CDC Project Office and other stakeholders to clarify the monitoring process.
 - 1. Reviewed the *CDC Contingency Management Plan* for the monitoring process used to identify "at risk" systems of not being Year 2000 compliant.
 - 2. Identified mission critical systems that are not included in the monitoring process as described in the *CDC Contingency Management Plan*. For those identified, we determined if there is an alternative process to monitor these systems.

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3. Determined the reliability of using INOMS to monitor systems by reviewing prior and current projects conducted by Internal Audit and outside vendors. In addition, we reviewed the APR INOMS data files “convstatus” and “component” for missing, inaccurate, and incomplete data.
 4. Tested the methodology of how systems are determined to be “at risk”. This included reviewing historic data to determine if monitoring continues after target due dates have passed and if monitoring is adequate for systems attempting component certification (milestones 13 & 14).
- C. Determined if systems identified as at risk of not being Year 2000 compliant were properly issued a Contingency Request Memorandum and provided a proper response. As needed, we conducted discussions with the CDC Project Office and other stakeholders to clarify obtained information.
1. Reviewed the *CDC Contingency Management Plan* to identify procedures for issuance and receipt of Contingency Request Memoranda.
 2. Obtained IRS requirements and acceptable managerial practices for proper issuance and response.
 3. Obtained and reviewed all issued Contingency Request Memoranda to determine the effectiveness of the CDC Project Office to notify and monitor “at risk” projects.
- D. Determined if local operational contingency plans (includes business resumption plans and disaster recovery plans) have considerations for system failures that can be used in the event of a Year 2000 system failure. As needed, we conducted discussions with the CDC Project Office and other stakeholders to clarify information.
1. Obtained IRS’ requirements, other government requirements, and acceptable managerial practices for contingency plans that cover system failures.
 2. Reviewed the *Comprehensive Business Resumption Plan* and the *Disaster Recovery Plan* that were designed for service centers to determine their scope and whether they contain adequate and consistent provisions to minimize and correct a Year 2000 system failure.
 3. Reviewed and discussed business resumption plans and disaster recovery plans for districts, computing centers, distribution centers, and compliance centers.
 4. Discussed communication between the CDC Project Office and the developers of business resumption plans and the disaster recovery plans to determine if resources are effectively utilized to accomplish contingency planning.

Major Contributors to This Report

Western Regional Office

Stephen Mullins, Regional Inspector General for Audit
Scott Macfarlane, Deputy Regional Inspector General for Audit
Edward Neuwirth, Acting Deputy Regional Inspector General for Audit

Denver Field Office

Michael McKenney, Audit Manager
Aaron Foote, Senior Auditor
Mark Judson, Auditor
Joe Smith, Auditor

Laguna Niguel Field Office

Carla Steiger, Auditor
Louis Zullo, Auditor

National Office, Washington, D.C.

Michael Phillips, Acting Director, Office of Audit Projects
Vincent Dell'Orto, Audit Manager
Kim Woodard, Auditor

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Appendix III

Report Distribution List

Deputy Commissioner for Modernization C:DM
Deputy Commissioner for Operations C:DO
Chief Information Officer IS
Deputy Chief Information Officer, Systems Development IS
Deputy Chief Information Officer, Operations IS
Director, Year 2000 Project IS:CD
Director, Office of Systems, Standards & Evaluation IS:E
Director, Office of Information Resources Management IS:IR
Chief Operations Officer OP
Chief, Management and Finance M
National Director for Legislative Affairs CL:LA
Office of Management Control M:CFO:A:M
Audit Liaisons
 Chief Information Officer IS
 Chief, Management and Finance M
 Chief Operations Officer OP
 Deputy Chief Information Officer, Systems Development IS
 Deputy Chief Information Officer, Operations IS
 Year 2000 Project Office IS:CD
 Office of Systems Standards & Evaluation IS:E
 Office of Information Systems Resources Management IS:IR

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Appendix IV

CDC Conversion Milestones

Conversion Phases	Progress Points for CDC Conversion Milestones		
	Steps	Major Milestones	Points
ASSESSMENT	1	Requirements Issued	N/A
	2	Requirements Received	10
RENOVATION	3	Impact Analysis Report	10
	4	Source Code/COTS Compliance Form	15
	5	Documentation Transmittal to SAT Tester	10
VALIDATION	6	Unit Test Process Checklist	10
	7	Compatibility Testing	5
	8	Program Transmittal to SAT Tester	5
	9	SAT One-Third Completed	5
	10	SAT Two-Thirds Completed	5
	11	SAT End-of-Test Report	5
IMPLEMENTATION	12	Program Transmittal to Production	5
CERTIFICATION	13	Component-Level Certification	5
	14	System-Level Certification	10
Total Points			100

The percentage of milestone conversion completed by tier and phase equals the count of completed components divided by the count of committed components multiplied by the points for the milestone. For example, the calculation would be $(35/100) \times 10$ for 100 committed components with 35 completed components for the Impact Analysis Report milestone. This is 3.5 or 0.035 percent completed for conversion.

After each milestone is calculated, the individual percentages are summed to create a total conversion percentage for the tier and phase. This total conversion percentage is compared to the percent of time that has elapsed for the phase. A “green” or satisfactory status is when the variance is less than or equal to 5 percent. A “yellow” or an at risk status is when the variance is greater than 5 and less than 15 percent. A “red” or an at great risk status is when the variance is greater than 15 percent.

Source: Century Date Change Project Management Plan, Version 5.1 (May 22, 1998)

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Appendix V

Management's Response to the Draft Report



DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
WASHINGTON, D.C. 20224

FEB 8 1999



MEMORANDUM FOR TREASURY INSPECTOR GENERAL
FOR TAX ADMINISTRATION

FROM:

for David W. Junkins *Mike Parker*
Director, Office of Information Resources Management IS:IR

SUBJECT:

Management Response to Internal Audit Draft Report - Review
of the Service's Year 2000 Contingency Planning Efforts, dated
September 21, 1998

The Director, Year 2000 Project, the Assistant Commissioner for National Operations, and the Director, Office of Systems Standards and Evaluation, have reviewed the subject draft Internal Audit Report, and provided the attached management response. Also included is an introduction which addresses the issues raised by Mike McKenney in his electronic mail message dated December 7, 1998.

If you have any questions, please call me on (202) 283-4060, or have a member of your staff call Donna Downing on (202) 283-4159.

Attachment

cc: Director, Office of Audit Projects

Review of the Internal Revenue Service's Year 2000 Contingency Planning Efforts

Response to Internal Audit Draft Report - Review of the Service's Year 2000 Contingency Planning Efforts

Introduction

The Century Date Change Project Office (PO) has developed a comprehensive process to track the Y2K conversion effort. The PO tracks primarily by work scheduled for a six month period, called a phase. This is based on the implementation date of the component. For example, components scheduled for production between August 1, 1998 and January 31, 1999, would be considered Phase V.

The PO tracks progress using a linear time line. Using general start times for Information Systems processing, the PO assumed that work would start in January for programs scheduled for production in July. This period contains 212 calendar days. To compute planned progress, the PO assumes that 1/212 of the work is being done each day. This gives an overview of how work is progressing at a high level. For most of the components, this method gives a good indication of how the conversion effort is going. However, there are exceptions. Each component in INOMS is given equal weight, whether it is one line of JCL or main programs containing thousands of lines of code. Small programs may be converted later in the phase. In some cases, based on when the programs go to production and the number of changes, the responsible owner organization may start their conversion effort later in the phase and still be done timely. It is the responsibility of the owner organization to ensure that their components are scheduled and converted timely.

The PO produces several reports to track conversion progress. Each week, Oversight Reports are produced which show by section, branch, and division how many components have met each milestone and the overall status for each of these organizational levels. For each section in red, this information is forwarded each week, along with any explanation provided, to the Deputy CIO for Systems. Invalid listings are given to each division listing components that meet certain invalid conditions, such as uncommitted components or missing milestones if the scheduled phase has ended. Organizations with more than ten uncommitted components are included in the report to the Deputy CIO for Systems. A movement report is generated each week that lists components that were added or deleted to INOMS, or the phase or disposition code changed. The division director is required to confirm that these changes were valid.

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In addition to these reports given to the section, the CDC Project Director holds weekly IS and Field and Customer meetings with the executives or their representatives to review the Weekly Progress Reports. These reports consist of approximately 50 individual reports concerning various aspects of the project. Each week, the division directors receive a memorandum listing the outstanding items for their organization. The CIO and his executives each receive a copy of these memoranda. Starting in January 1999, the division directors will be required to provide a status update on these items to the CIO at the CDC Executive Steering Committee meetings, which will be held monthly.

INOMS is the official inventory for IRS. It is continually updated each week, as new programs are developed, old programs are retired, and milestones are completed. The CDC Project Office uses INOMS to track progress, but does not attempt to manage the conversion activity at the level of minutia that the owner organizations are already doing. The accuracy of INOMS is the responsibility of the responsible organization. The PO does check for some data anomalies that are then forwarded to the owner organizations for explanation and/or resolution.

To address some of the specific concerns of the draft report (see pages 5 and 6):

A. 64 component names in the "convstatus" data file do not correspond to records in the "component" data file. These components do not have identified systems, responsibilities, or contacts.

Response: System, responsible organization and contacts are not fields on the "convstatus" record. "Convstatus" records are automatically deleted when the corresponding component record is deleted. There was a bug in the auto delete process well over a year ago, but was corrected with INOMS release 8.0. Orphan "convstatus" records may have been established at that time and not removed upon implementation of the fix. Currently, there is no open trouble ticket reporting a problem with this process. Note that several "convstatus" records have a last update date that goes back to July 1997.

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B. 42 component names in the "component" data file do not correspond to records in the "convstatus" data file. These components do not have a record of planned or actual milestone accomplishments.

Response: The converse of Issue A, above, occurs because skeleton "convstatus" records are automatically created when "component" records are created, both on-line and batch.

C. 718 components in the "convstatus" data file do not have a phase and disposition. It is unknown if these components are to be retired or converted"

Response: It is not clear what fields on INOMS that Internal Audit checked. Components with a lifecycle of "R" are not required to have a disposition code or phase since they are no longer in production. Components with a disposition code of "R" (to be retired by 1/31/1999, unless it has a waiver) are not required to have a phase.

D. 13,668 components in the "convstatus" data file have dispositions that contradict the "component" data file's lifecycle. It is unknown if these components should be converted or retired.

Response: The component lifecycle indicates the current status of the component. "P" means the component is currently in production, "R" means the component is no longer in production, and "D" means the program is currently in development. The "convstatus" disposition code is what is planned to be done with the component for Year 1999 compliance. The values are "C" for convert, "R" for retire no later than January 1999, or "N" for no date impact. It is a valid condition for components with a "P" lifecycle to have disposition codes of "R".

E. 637 components in the "convstatus" and "component" data files have dispositions and lifecycles that indicate retired but the "convstatus" data file also indicates the components have completed the conversion milestones including implementation (milestone 12). It is unknown if these systems should be retired or converted and placed into production.

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Response: This is quite possible because programs have to be converted when the rest of their system is, even if they will be retired prior to January 2000. For instance, most of the Master File processing conversion was done in phase III. Numerous programs are yearly programs and are retired at the end of the year and replaced with the next year's version.

F. 551 components in the "convstatus" data file have milestone accomplishments years before the CDC Project Office was established in 1996.

Response: In some instances, the work was done early due to advance forward dates in the components. In other cases, the dates entered were when the components were last transmitted to production because they had no date impact. This was more prevalent before the PO established the "N" disposition code. The PO does not check the validity of the data for typographical errors. If a date is entered by the responsible organization for the milestone, the PO assumes that the milestone is complete.

G. 4,362 phase III components in the "convstatus" data file indicate validation was completed before renovation. The unit test process checklist completion date (milestone 6) is before the documentation transmittal to SAT tester completion date (milestone 5). The average difference between the milestone dates is 46 days.

Response: The CDC Project Office does not require that milestones be completed in a certain order. The milestones are usually completed based on the schedules for individual systems as determined by the converting organizations. For example, IDRS documentation and programs are transmitted to Product Assurance on certain dates.

H. 24,100 phase III components in the "convstatus" data file indicate implementation was completed before validation.

Response: The Systems Acceptability Testing (SAT) End of Test date is when the paperwork was completed and the reports signed. It can take several weeks for the paperwork to be completed and INOMS updated. Any programming problems identified are reported immediately to the developers and resolved. Programs are transmitted to production on set dates usually based on what cycle production is scheduled to start.

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The CDC Project Office does not consider this to be a concern.

Clarification on Contingency Monitoring - The Year 2000 Certification Process is not monitored to indicate when contingency planning becomes necessary. - The CDC Project Office is doing extensive monitoring of the code validation (Step 13) effort. Grumman is tracking, by organization, the number of lines of code reviewed, the number of potential errors identified, the number of actual errors, and the number of errors awaiting response. The Project Office is also tracking on INOMS, by organization, the number of components with the code validation milestone updated. To date, no significant problems have been identified during code validation. If this changes, the Project Office can put an organization or system into red status and raise the concern to the appropriate executive level. Contingency plans would then be initiated if necessary.

The end-to-end testing (Step 14) will also be monitored. If problems are identified, appropriate steps will be taken to mitigate the risk.

Contingency Request Memorandums are not always issued and responses are not always received, evaluated, or monitored. - Contingency Request Memorandums are issued based on an algorithm using the linear time line that the Project Office uses to track progress. They are issued at the section level for a system. Judgment has to be used in determining if a contingency plan is really needed. For instance, if there is a system that has 100 components, with 99 ahead of schedule in one section and one small component in another section that is behind based on our linear time line but not based on their internal schedule, a contingency plan is probably not necessary. While in an ideal world an organization might develop contingency plans for every system, it is not realistic for IRS to do so based on the enormous staff and time required to develop contingency plans.

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Recommendation 1:

Review and correct the data files used to monitor the Year 2000 progress for the situations we reported. This will be a recurring process as the Year 2000 conversion continues and should include:

Verifying the existence of components and the consistency of recorded information between data files.

Verifying the accuracy of mandatory fields including disposition, lifecycle, phase and milestones.

Assessment of Cause:

INOMS did have a problem that created inaccurate data. However, the systemic problem was corrected with release 8.0.

Corrective Action:

INOMS has identified and corrected the systemic problem and will resolve the inaccurate data. At this time, a sizable amount of the inaccurate data has already been resolved.

Implementation Date:

Completed:

Proposed: May 3, 1999

INOMS has corrected the systemic problem and will resolve the inaccurate data.

Responsible Official:

Chief Information Officer IS
Deputy Chief Information Officer (Operations) IS
Assistant Commissioner, National Operations IS:O

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Recommendation 2:

To ensure future computer data used to monitor the Year 2000 progress is accurate and complete, program validity checks to the APR data files. These validity checks should include:

Comparing fields within data files for valid compatible values.

Matching similar and mandatory fields between data files for valid compatible values.

Comparing fields within data files for proper sequence of events.

Assessment of Cause:

This issue was corrected in August 1998 with INOMS release 8.0.

Corrective Action:

INOMS will continue to monitor these issues.

Implementation Date:

Completed:

Proposed: May 3, 1999

INOMS will continue to monitor these issues.

Responsible Official:

Chief Information Officer IS
Deputy Chief Information Officer (Operations) IS
Assistant Commissioner, National Operations IS:O

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Recommendation 3:

Develop procedures to identify, monitor, and contact owners of components or systems that have not completed the 12 milestones within a reasonable period after the phase due date. The information reports can identify and communicate between the CDC Project Office and the system owners any overdue and incomplete components. After contacting system owners with incomplete components that still appear to be "at risk" there should be procedures to begin contingency planning.

Assessment of Cause:

The CDC PO does not concur with Internal Audit's assessment and therefore does not propose an assessment of cause. There are approximately 85,000 application components. The CDC Project Office's status report monitoring systems rely on reports at the organization level to monitor the status of these components. Some of the reports used by the CDC Project Office for monitoring component status and alerting executives of potential problems are:

- Year 2000 Weekly Status Report
- Weekly Summary of Sections in the Status Code Red (Yellow) Report
- Y2K INOMS Status Report
- Compatibility Testing Status Report
- COTS/Telecom Stoplight Exception Report
- Filing Season Readiness Report
- Systems in Red, Yellow Contingency Planning Status Reports
(For both Information Systems and Non-Information Systems organizations)

In addition to the reports listed above there are early warning memoranda and contingency plan request memoranda, as well as individual oversight reports sent to executives with yellow or red statuses. It is recognized that the status algorithm allows some degree of flexibility. However, as a phase comes to closure, incomplete components are individually identified and reported to the appropriate executives through the weekly progress report process. An organization will ultimately be reported in Red status if all of its components do not complete every milestone through implementation.

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Corrective Action:

No corrective action recommended.

Implementation Date:

Completed:

Proposed:

Responsible Official:

Chief Information Officer IS
Deputy Chief Information Officer (Systems) IS
Director, Century Date Change Project Office IS:CD

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Recommendation 4:

Develop procedures to identify "at risk" systems during the Year 2000 certification process before deadlines have been reached. This includes steps to remedy a system that failed or encountered a delay during either Component-Level Certification or System-Level Certification.

Assessment of Cause:

The Century Date Change Project Office disagrees with this audit recommendation.

The Century Date Change Project Office does identify at risk systems through the processes described below. The corrective action and the comments below address changes that have been made to its processes.

The contractor Northrop Grumman has been tasked to perform 100% code review (except in instances that would violate IRS security, in which case the code owner is responsible for the code review). As a result of the on-going review, Northrop Grumman has uncovered problems and the necessary action has been taken to correct them. Product Assurance, or in some cases the system owners, will conduct end-to-end testing for all systems. The combination of 100% code review and end-to-end testing better assures Year 2000 compliance than the earlier component and system certification process.

Several changes to the application renovation and status tracking processes have recently been made. The Business Continuity Contingency Plan (BCCP) has been modified; the risk assessment process and the rating system to capture input from Grumman (Step 13, Code/COTS Validation) and Product Assurance (Step 14, End-to-End Testing) to ensure all phases of the conversion process are included in the contingency management. Business or systems owners with systems found at risk or failing during these latter phases will be required to take appropriate measures to remedy deficiencies and mitigate further recurrences. Metrics for status tracking of the end-to-end testing have been developed and are being used to monitor systems being

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end-to-end tested by Product Assurance. They will provide visibility of systems that deviate from test schedule or fail testing.

Corrective Action:

New procedures and processes related to validation will be documented in Version 7.0 of the Project Management Plan and Version 5.0 of the Contingency Management Plan (CMP).

Implementation Date:

Completed:

Proposed: March 1, 1999

New procedures and processes will be documented in Version 7.0 of the Project Management Plan and Version 5.0 of the Contingency Management Plan.

Responsible Official:

Chief Information Officer IS
Deputy Chief Information Officer (Systems) IS
Director, Century Date Change Project Office IS:CD

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Recommendation 5:

Adhere to the formal Contingency Plan Request Memorandum process to ensure timely development of contingency procedures. This process includes accurately documenting the identification, agreements, and monitoring milestone accomplishments by the "at risk" system owners and the CDC Project Office.

Assessment of Cause:

The CDC Project Office has established specific procedures for issuing and responding to Contingency Plan Request Memorandums (CPRM). However, these procedures are not consistently followed, and even when "at risk" systems are identified, they are not always effectively addressed. A manual or automated process needs to be applied, to evaluate and monitor document responses in order to insure adequate follow-up is occurring.

Corrective Action:

We agree that the CDC Project Office cannot totally rely on automation to accomplish oversight responsibilities. Managers and, ultimately, the Project Director evaluates each proposed CPRM. Consequently, as noted in this report, a CPRM is not automatically issued based on "Red" status. Instead, all available information is assessed to measure risk levels and determine the merit of issuing a CPRM.

The Contingency Management Plan Version 4.0 published in October 1998 provides a CPRM process which includes management evaluation of both the need for a CPRM and the suspension of action on CPRMs already issued. Other steps have been taken to document the progress on CPRMs issued and to follow up on organizations that are delinquent on CPRM action requirements.

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Implementation Date:

Completed: October 1, 1998

Proposed:

The CPRM process has been documented and ensures follow-up on organizations that are delinquent on their CPRM action requirements is occurring.

Responsible Official:

Chief Information Officer IS
Deputy Chief Information Officer (Systems) IS
Director, Century Date Change Project Office IS:CD

Review of the Internal Revenue Service's Year 2000 Contingency Planning Efforts

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Recommendation 6:

Consolidate responsibility for the Service's overall contingency management strategy and the coordination of resources into one area. This responsibility would include both Year 2000 and non-Year 2000 contingency planning as well as coordinating with internal resources and vendors. The CDC Project Office should be an advisor and a participant but not be responsible for overall coordination. Coordination for this effort should be assigned at a high enough level to oversee all contingency planning resources.

Assessment of Cause:

(1) The Service has a process in place to initiate contingency planning for systems at risk of not completing the Year 2000 conversion process on time. However, there is also a need for a more comprehensive plan in case systems that have completed the conversion process still experience failures in the Year 2000.

The Service has recently devoted considerable effort to the development of non-Year 2000 contingency plans for the computing centers, service centers, regions and districts. These plans are known as Disaster Recovery and Comprehensive Business Resumption plans. Although the possibility of Year 2000 failures is widely known, none of the areas responsible for these plans included methods for dealing with Year 2000 failures. The recovery strategy of the non-Year 2000 plans is to establish operations at an alternate site using data back-up files. In most cases, this would provide no benefit in a Year 2000 related failure.

(2) The time-critical nature of being ready for Year 2000 does not allow enough time to establish a centralized IRS office to manage Servicewide contingency planning. The CDC PO has a Servicewide process in place to initiate contingency planning for systems at risk of not completing the Year 2000 conversion process on time and for a comprehensive plan in case systems that have completed the conversion process still experience failures in the Year 2000. The CDC PO has developed and enhanced this process over the last 18 months and the task will be completed in less than 12 months. A transfer of responsibility to a yet unestablished office would hinder instead of help this

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effort. The Office of Systems Standards and Evaluation (SSE), which is responsible for working security and privacy issues with offices across the Service, has initiated action to review and work with management to better address Servicewide contingency planning. However, these efforts will not be completed in time for the Year 2000.

Corrective Action 1 for Recommendation #6:

The CDC Contingency Management Plan (CMP) version 4.0 now documents the process used to develop core business process, critical business subprocesses, maps subprocesses to mission critical systems, and provides clear guidance for the development of failure scenario matrices for each critical business subprocess. Finally, it describes the contingency planning process and leads to a follow-on, companion BCCP was published in November 1998. It provides business process owners' assessments of areas that could have significant impact on the mission of the IRS if their supporting systems failed for Year 2000 reasons. Based on this assessment and related systems Year 2000 risk factors, the need for contingency plans will be established.

Implementation Date for Corrective Action #1 for Recommendation #6:

Completed:	Proposed: <u>May 31, 1999</u>
	Existing contingency plans will be received and redundancies will be minimized.

Responsible Official for Corrective Action #1 for Recommendation #6:

Chief Information Officer IS
Deputy Chief Information Officer (Systems) IS
Director, Century Date Change Project Office IS:CD

Corrective Action 2 for Recommendation #6:

The CDC PO will continue its Year 2000 contingency management activity with SSE reviewing it to ensure that it is consistent with other contingency planning efforts that

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SSE has been reviewing. In the longer term, SSE will evaluate alternatives with management to provide the IRS with a more effective and coordinated contingency planning process.

Implementation Date for Corrective Action #2 for Recommendation #6:

Completed:

Proposed: April 1, 2000

The Office of Systems Standards and Evaluation will establish alternatives for providing a coordinated contingency planning process for management consideration and approval.

Responsible Official for Corrective Action #2 for Recommendation #6:

Chief Information Officer IS
Deputy Chief Information Officer (Systems) IS
Director, Office of Systems Standards and Evaluation IS:E

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Recommendation 7:

Consider monitoring the status of contingency planning as part of the Service's Year 2000 dashboard report. The dashboard report was established to help high-level management monitor the progress of critical Year 2000 projects and areas. This monitoring should follow the key steps in the development and testing of these contingency plans to ensure they are appropriate for Year 2000 failures.

Assessment of Cause:

The CDC Project Office was not adequately monitoring the development and testing of the contingency planning process to ensure it appropriately provided for Year 2000 failures.

Corrective Action:

The CDC Project Office monitors all contingency planning activity and various reports are produced and reviewed with the Service's managers as part of its general oversight. As the requirement for contingency plans are solidified, the CDC Project Office will monitor and report contingency plan development progress status on a weekly basis and include appropriate status information in dashboard reports.

Implementation Date:

Completed: November 25, 1998

Proposed:

The CDC Project Office has included Contingency Planning Status as an element in its weekly status reports and meeting with IS and Field and Customer Organizations and as part of its Executive Steering Committee dashboard starting with the January meeting.

**Review of the Internal Revenue Service's
Year 2000 Contingency Planning Efforts**

**Response to Internal Audit Draft Report -
Review of the Service's
Year 2000 Contingency Planning Efforts**

Responsible Official:

Chief Information Officer IS
Deputy Chief Information Officer (Systems) IS
Director, Century Date Change Project Office IS:CD